

Forest therapy and the health benefits of forest

Eira-Maija Savonen


Researcher at the Finnish Forest Research Institute (which later became a part of the Natural Resources Institute Finland) (retired in 2017)


Karvia 27.2.2019





- **Cumulative stress is harmful for the health.**
- **People usually have means for stress-regulation.**
- **Use of nature for relieving stress is one of these.**


There are many articles describing psychological restoration from stress


- 1  **The restorative benefits of nature: Toward an integrative framework** Original Research Article
Journal of Environmental Psychology, Volume 15, Issue 3, September 1995, Pages 169-182
Stephen Kaplan
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- 2  **Exposure to restorative environments helps restore attentional capacity** Original Research Article
Journal of Environmental Psychology, Volume 25, Issue 3, September 2005, Pages 249-259
Rita Berto
[Show preview](#) | [PDF \(530 K\)](#) | [Recommended articles](#) | [Related reference work articles](#)


- 3  **Stress recovery during exposure to natural and urban environments** Original Research Article
Journal of Environmental Psychology, Volume 11, Issue 3, September 1991, Pages 201-230
Roger S. Ulrich, Robert F. Simons, Barbara D. Losito, Evelyn Fiorito, Mark A. Miles, Michael Zelson
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- 4  **Selective attention and heart rate responses to natural and urban environments** Original Research Article
Journal of Environmental Psychology, Volume 23, Issue 2, June 2003, Pages 125-134
Karin Laumann, Tommy Gärling, Kjell Morten Stormark
[Show preview](#) | [PDF \(547 K\)](#) | [Recommended articles](#) | [Related reference work articles](#)

- 5  **Environmental preference and restoration: (How) are they related?** Original Research Article
Journal of Environmental Psychology, Volume 23, Issue 2, June 2003, Pages 135-146
Agnes E van den Berg, Sander L Koole, Nickie Y van der Wulp
[Show preview](#) | [PDF \(908 K\)](#) | [Recommended articles](#) | [Related reference work articles](#)

- 6  **Where to recover from attentional fatigue: An expectancy-value analysis of environmental preference** Original Research Article
Journal of Environmental Psychology, Volume 23, Issue 2, June 2003, Pages 147-157
Henk Staats, Arenda Kieviet, Terry Hartig
[Show preview](#) | [PDF \(489 K\)](#) | [Recommended articles](#) | [Related reference work articles](#)

- 7  **REFLECTION AND ATTENTIONAL RECOVERY AS DISTINCTIVE BENEFITS OF RESTORATIVE ENVIRONMENTS** Original Research Article
Journal of Environmental Psychology, Volume 17, Issue 2, June 1997, Pages 165-170
Thomas R. Herzog, Andrea M. Black, Kimberlee A. Fountaine, Deborah J. Knotts
[Show preview](#) | [PDF \(56 K\)](#) | [Recommended articles](#) | [Related reference work articles](#)

- 8  **The need for psychological restoration as a determinant of environmental preferences** Original Research Article
Journal of Environmental Psychology, Volume 26, Issue 3, September 2006, Pages 215-226
Terry Hartig, Henk Staats
[Show preview](#) | [PDF \(1919 K\)](#) | [Recommended articles](#) | [Related reference work articles](#)

- 9  **Views to nature: Effects on attention** Original Research Article
Journal of Environmental Psychology, Volume 15, Issue 1, March 1995, Pages 77-85
Carolyn M. Tennessen, Bernadine Cimprich

A person wearing a red and white striped shirt and a purple jacket is walking away from the camera through a dense forest. The forest floor is covered with many green ferns, and tall trees are visible in the background. The scene is brightly lit, suggesting a sunny day.

According to these studies nature and forest environments can promote human wellbeing by:

- **reducing stress,**
- **improving mood,**
- **concentration and performance**

Positive psychological effects of exposure to green surroundings:

- Readiness to notice positive feelings
- Satisfaction increases
- Self-reported health improves
- Feelings of anger decreases
- Impulsive behaviour decreases
(especially in the case of people suffering from attention deficiency hyperactivity disorder ADHD)
- Constant interruptions are typical for modern information technology and they may lead to decreased ability to concentrate. This state is called a self-induced attention deficiency trait ADT. Difficulties in concentrating to read a book for instance.

Psychological changes indicating restoration from stress are subjective and difficult to measure. During the last decades also physiological, measurable indicators have been discovered. They are objective and reliable.

In nature settings lower levels of

- blood pressure,**
- heart rate,**
- skin conductivity,**
- muscle tension and**
- stress-related hormones like cortisol**
have been measured

Restorative outcomes include:

Physiological relaxation (measured by alphawaves in the brain, muscle tension in the forehead, skin conductance, pulse transit time, blood pressure, heart rate variability, cortisol)

→ 7 min

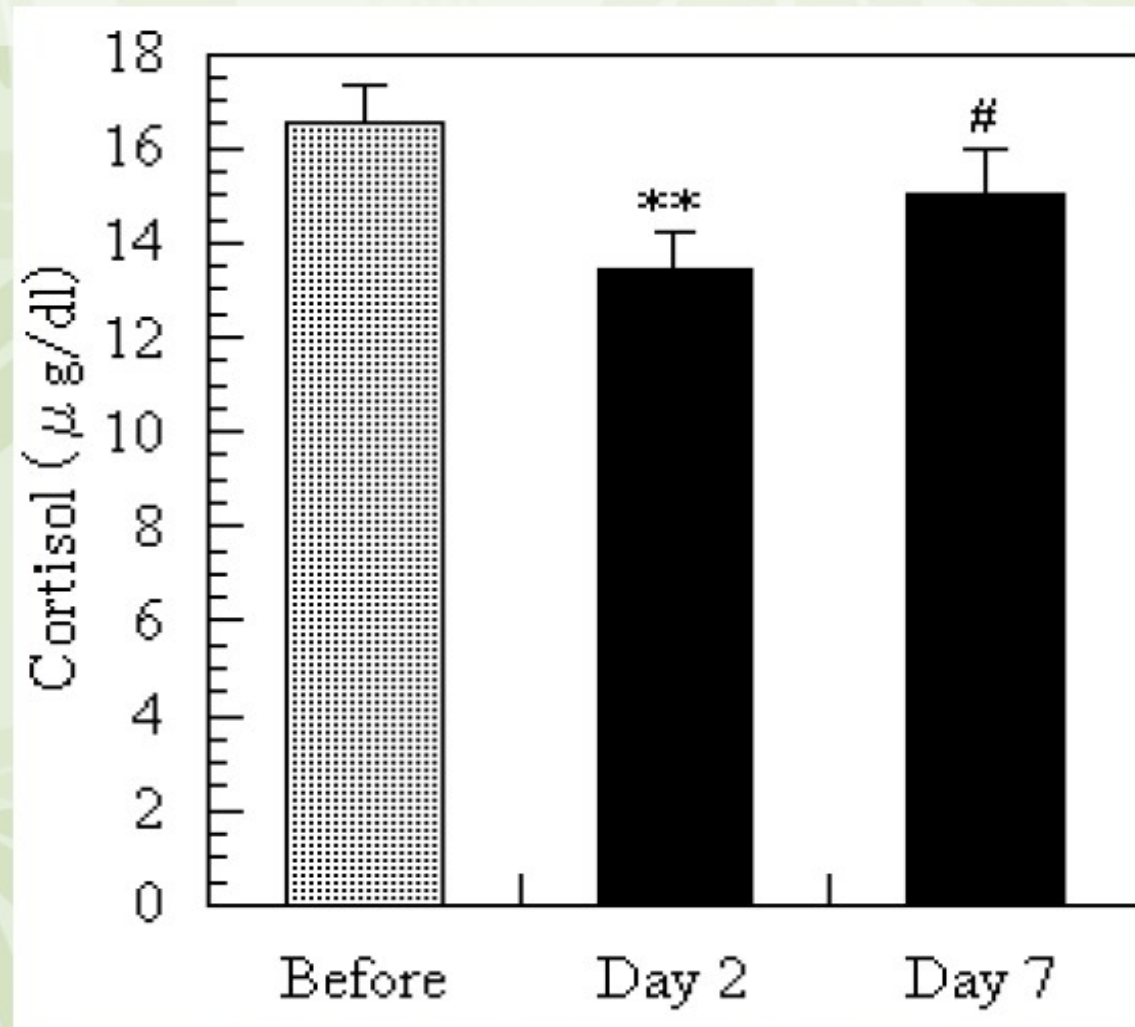
Decrease in negative feelings (anger, sadness, anxiety and fatigue) and **increase in positive mood**

→ 20 min

Recovery of the ability to concentrate (to work etc.),

→ 40 min

A day trip to a forest park reduces cortisol in serum



** : $p < 0.01$,
: $p = 0.053$

May 27, 2011

**Does nature affect human
immune function?**

**Qing Li, MD, PhD
Nippon Medical School
Tokyo, Japan**

Natural killer (NK)

Blood



Red blood cells

White blood cells

platelet



Granulocytes

Lymphocytes

Macrophages



T cells

NK cells

B cells

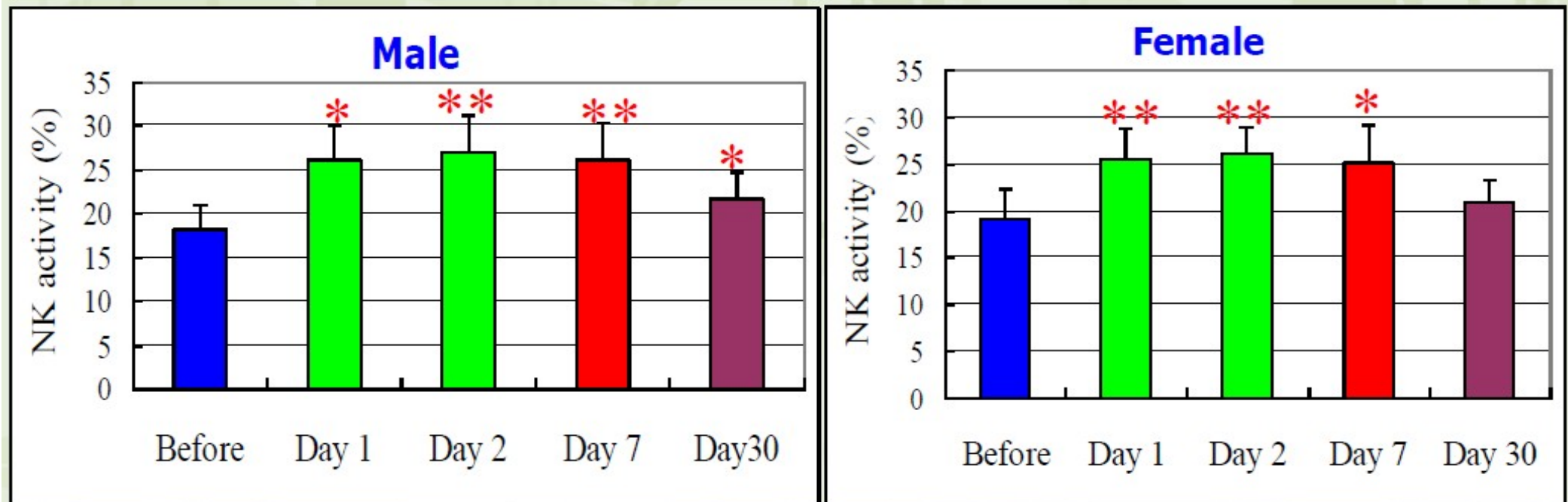
(Immune cells)

Subjects were walking in a forest

(Japanese oak, Japanese white birch, Bamboo grass)



Forest visits increased NK activity and this effect lasted for more than 7 days in both males and females



***: $p < 0.05$, **: $p < 0.01$, from before the trip**

Li Q et al. Int J Immunopathol Pharmacol. 2008;21(1):117-27.

Li O. et al. J Biol Regul Homeost Agents 2008;22(1):45-55.



THE JAPANESE
ART AND SCIENCE OF
SHINRIN-YOKU

FOREST BATHING

HOW TREES CAN HELP YOU FIND
HEALTH AND HAPPINESS

DR. QING LI

CHAIRMAN OF THE
JAPANESE SOCIETY FOR
FOREST MEDICINE

Metla's project "Health from forest" 2008-2011:

Could the scientific results of nature's good effects on human wellbeing be benefitted as a practical product?

Are simple exercises done along forest trail suitable for this purpose?

Project "Health from Forest" 2008-2011

Task 2: Construction of **a therapeutic forest environment** which promotes human health and well-being

Finland's first wellbeing-themed forest trail was opened at Ikaalinen Spa in May 2010.

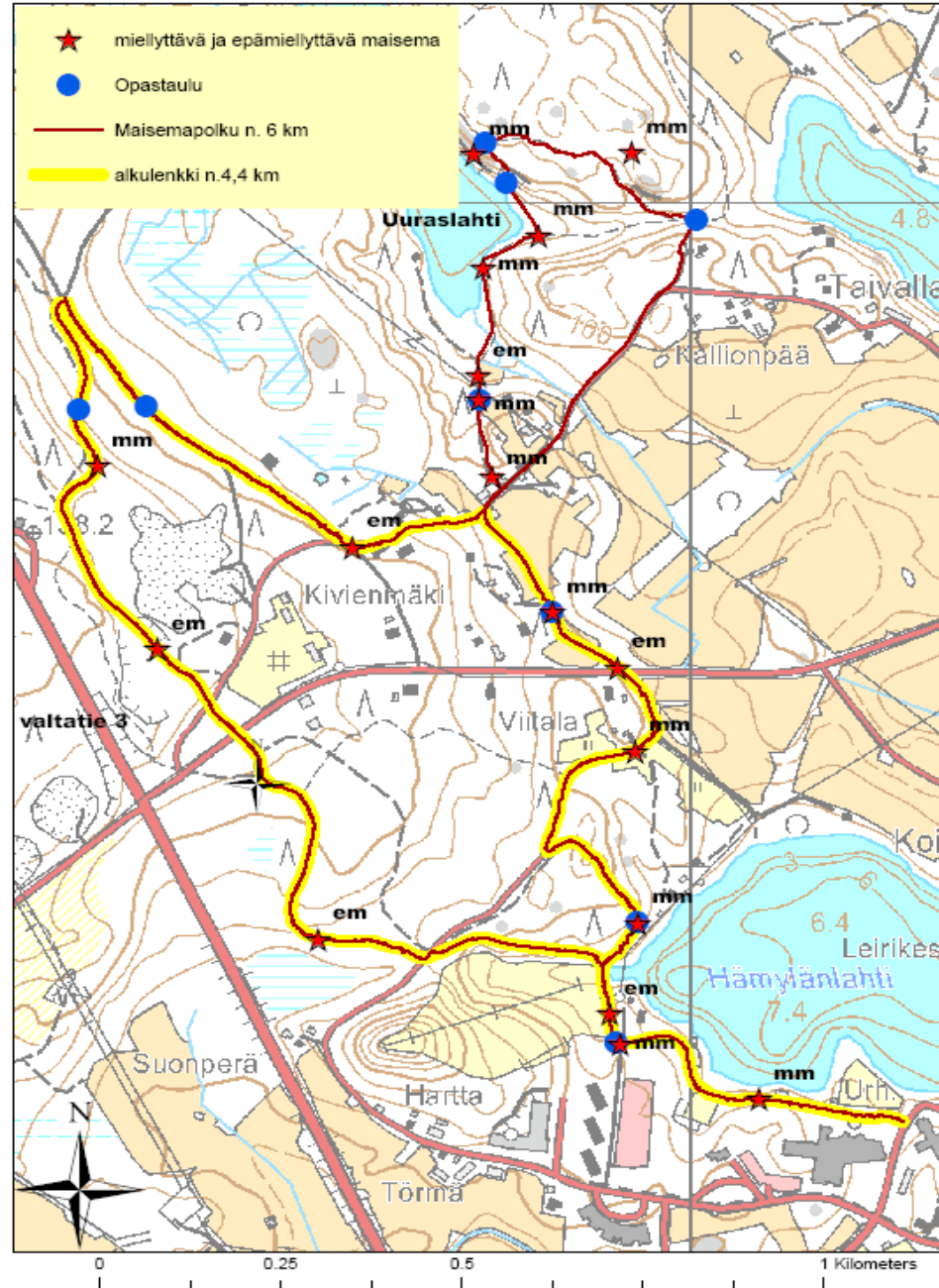
Funding: The European Regional Development Fund (2009-2011)

The first Finnish Thematic Restorative Forest Trail was built in Ikaalinen Spa



Kuva: Takumi Kato

Opening 20.5.2010



Take a few calm breaths in and out. **Feel your mind and body becoming calm.**



Let the landscape or a detail affect your mood. **Feel your mood improve.**



Exercise 4.

Look around you and let your eyes find

Let the peacefulness of the place affect you.

Exercise 5.

Imagine that in this place, nature can hear your thoughts.

Feel your burdens lift.



A user survey was carried out in 2010:

- 79% of the Finnish visitors (N=167) reported that their mood was more positive
- 69% said that they were calmer, more alert and energetic, and more away from everyday worries
- 90% were willing to recommend the trail to friends and acquaintances after a stressful day/week at work

Conclusion: Exercises were successful for the majority of the Finnish respondents.

Would the results be similar in other countries with differences in

- Population density**
- Degree of urbanization**
- Culture**

?



FOREST PROJECT – Network of densely wooded regions in Europe

Forest Trail
1.5.2012 – 30.9.2014

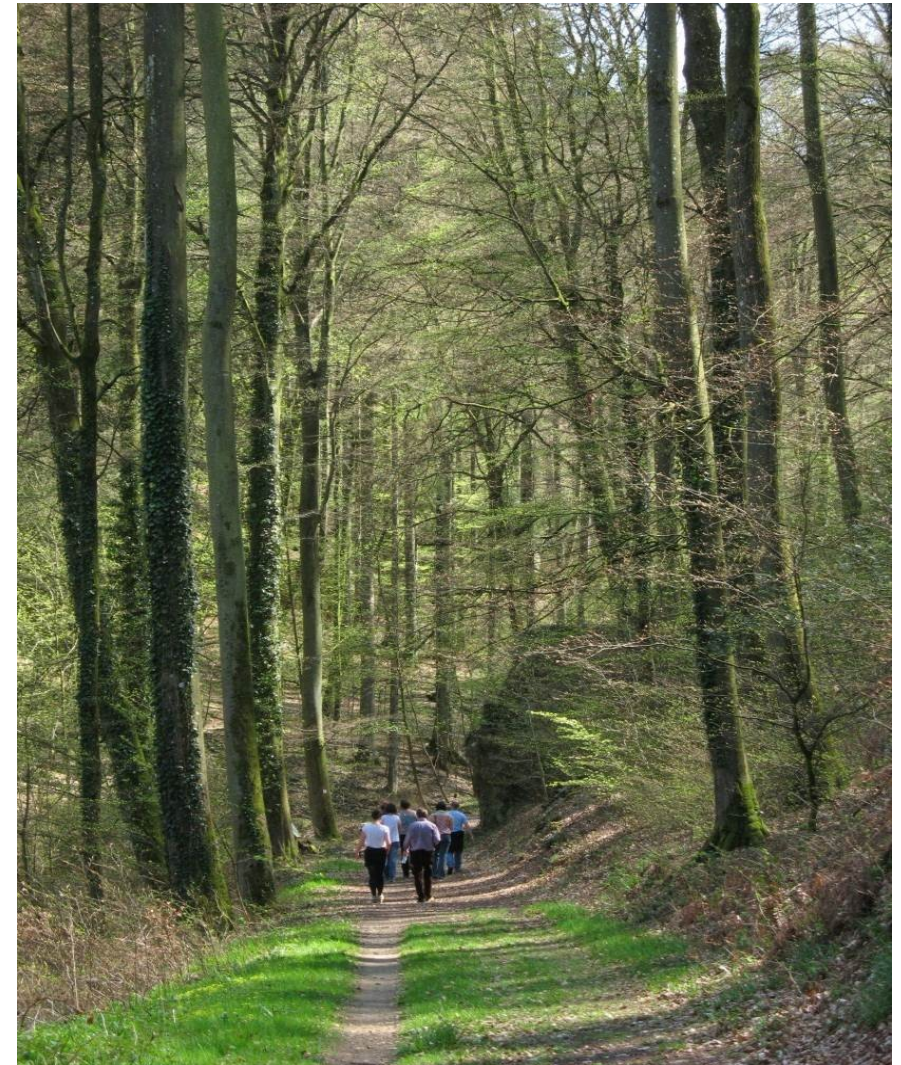
- **Aim: To distribute the concept of well-being and stress-alleviation (restoration) enhancing forest trails**
- **Well-being trail in each partner LAG**
 - LAG Mullerthal, Luxembourg, LAG Växtlust, Sweden, LAG Pays de la Déodatie, France, LAG Aktiivinen Pohjois-Satakunta ry
- **A user survey to study the visitors' restorative experiences**

Wellbeing trails in partner countries:

- **Sweden, Sunne in 2012,**
- **Luxemburg, Nommern in 2013**
- **France, Brouvelieus in 2013**
- **Finland, Parkano in 2014**

All trails use existing networks of trails in ordinary, managed forests with easy access for visitors.

First private “Wellbeing Trails” have been constructed as well



Ohjeet

Lähde metsäpolulle ja kokeile mitä vaikutuksia Rantareitti saa Sinussa aikaan. Kulje polku (3,8 km, merkitty oranssilla värillä) lävitse rauhassa, itseesi ja ympäristösi hiljentyen. Reitillä olevat taulut (9 kpl) toimivat pysähdyspaikkoina, joissa voit tehdä taulussa olevan harjoitteen. Jos jokin muu kohta polun varrella puhuttelee Sinua, pysähdy kuuntelemaan!

Instructions

Walk around the Rantareitti Trail (3,8km, marked with orange color) and see if you can sense such changes in yourself. Walk calmly, take your time, and enjoy your surroundings. Stop by the notice boards, and try the nine exercises described. If anything in the forest elsewhere along the trail speaks to you, stop and listen!

METLA

**TAMPEREEN
YLIOPISTO**



Euroopan maaseudun
kehittämisen maatalousrahasto:
Eurooppa investoi maaseutualueisiin



Leader
Pohjois-Satakunta



METLA

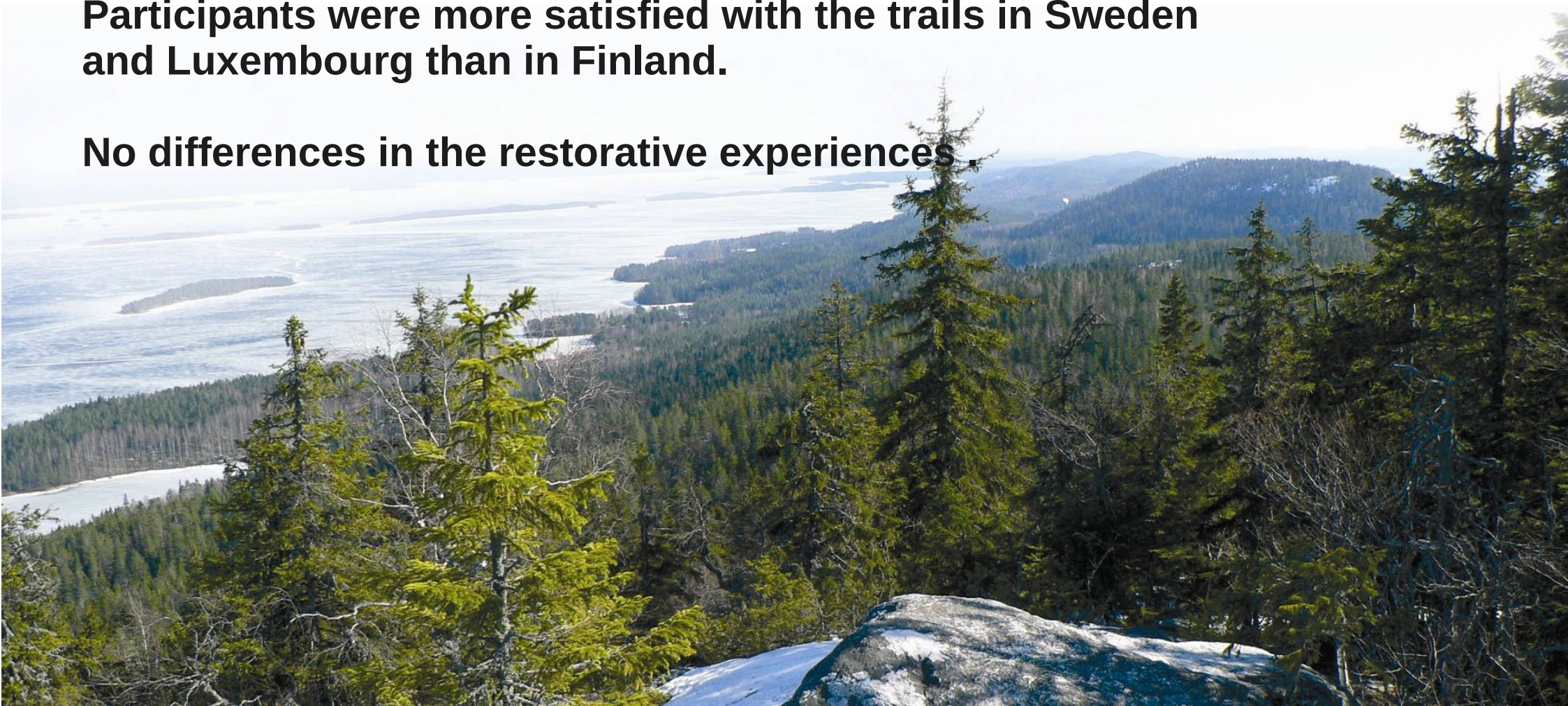
Enhancing wellbeing with psychological tasks along forest trails

Korpela, K; Savonen, E-M; Anttila, S; Pasanen, T; Ratcliffe, E (2017)

Results:

Participants were more satisfied with the trails in Sweden and Luxembourg than in Finland.

No differences in the restorative experiences



Youtube videos describing Japanese Forest bathing Shinrin-yoku

<https://www.youtube.com/watch?v=LUfbMIGcxkM>

Shinrin Yoku is a Japanese term that means "Forest Bathing." It is a health-enhancing practice that is introduced in this brief video, courtesy of Shinrin-yoku.org about 3 min.

<https://www.youtube.com/watch?v=9jPNll1Ccn0>

Science of "forest bathing": fewer maladies, more well-being? 20 min
Interview of Qing Li.

<https://www.youtube.com/watch?v=W0MEFNyLPag>

Pay Attention: How "forest bathing" clears the mind and body 5 min